

WHAT IS CLAIMED IS:

1. A card for transmitting data over at least one optical fiber, the card comprising:
 - a transmitter having at least one light source and a phase modulator for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of an input electronic data stream; and
 - a receiver having an interferometer for reading received optical signals.
2. The card as recited in claim 1 wherein the at least one light is a laser.
- 10 3. The card as recited in claim 1 further including an energy level detector.
4. The card as recited in claim 1 wherein the interferometer includes a delay loop fiber.
- 15 5. The card as recited in claim 5 wherein the delay loop fiber has a securing device for securing the delay loop fiber to the card.
6. The card as recited in claim 1 further including a circuit having a delayed feedback exclusive-or gate.
- 20 7. The card as recited in claim 1 wherein the interferometer includes a splitter and a coupler.
8. The card as recited in claim 1 wherein the card includes backplane made from a printed circuit board.
- 25 9. The card as recited in claim 1 wherein the card includes a faceplate having a fiber tap signal device.
- 30 10. The card as recited in claim 1 wherein the card is a replacement part for an existing optical multiplexor.

11. A method for converting an existing amplitude-based optical device to a phase-modulated based optical device comprising the steps of:

- 5 removing a card having an amplitude-modulated light source from an existing optical telecommunications device; and
- inserting a new card having a phase-modulated light source and an interferometer into the existing telecommunications device.

12. A method for manufacturing a card for transmitting data over at least one data
10 transmitting optical fiber, the card having a transmitter and a receiver, the method comprising the steps of:

- 15 placing at least one light source on a backplane,
 placing a phase modulator onto the backplane next to the at least one light source, the phase modulator being connected to the at least one light source, but not by the at least one data transmitting optical fiber; and
- placing an interferometer on the backplane.

13. The method as recited in claim 12 wherein the backplane is a printed circuit board.

20 14. The method as recited in claim 12 further comprising placing an energy detector on the backplane.